CLAIMS LISTING

Claim 1 (cancelled)
Claim 2 (cancelled)
Claim 3 (cancelled)
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Claim 73 (cancelled)

Claim 74 (cancelled)

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Claim 76 (cancelled)

Claim 77 (cancelled)

Claim 78 (cancelled)

Claim 79 (previously amended) A semiconductor light source for emitting light to illuminate a space used by humans, the semiconductor light source comprising:
an enclosure, said enclosure being fabricated from a material substantially transparent to white light,
an interior volume within said enclosure,
a heat sink located in said interior volume,
said heat sink being capable of drawing heat from one or more semiconductors devices,
said heat sink having a plurality of panels on it suitable for mounting semiconductor devices thereon,
said panels on said heat sink being oriented to facilitate emission of light from the semiconductor light source in desired directions around the semiconductor light source,
at least one semiconductor chip capable of emitting light mounted on one of said panels,
said semiconductor chip being capable of emitting monochromatic light,
said semiconductor chip being selected from the group consisting of light emitting diodes, light emitting diode arrays, laser chips, LED modules, laser modules, and VCSEL chips,
said chip including a substrate on which epitaxial layers are grown,
a buffer layer located on said substrate, said buffer layer serving to mitigate differences in material properties between said substrate and other epitaxial layers,
a first cladding layer serving to confine electron movement within the chip, said first cladding layer being adjacent said buffer layer,
an active layer, said active layer emitting light when electrons jump to a valance state,
a second cladding layer, said second cladding layer positioned so that said active layer lies between cladding layers,
a first and a second reflective layer, each of said first and second reflective layers being located on opposite sides of said active layer, said reflective layers serving to reflect

light emitted by said active layer,
said reflective layers including multiple quantum wells,
a contact layer on which an electron may be mounted for powering said chip,
a coating for converting monochromatic light emitted by said chip to white light,
an air entrance, an air exit, and an interior airflow path through said heat sink,
said air entrance and air exit being proximate a fitting for electrical connection to a light bulb socket,
said airflow path proceeding from said air entrance toward the top of the bulb, turning 90 degrees to move laterally a predetermined distance, then turning to move down toward the bottom of the bulb, and out said air exit,
said airflow path permitting air to enter said heat sink through said air entrance, absorb heat from said heat sink, and exit said heat sink through said air exit, and
air located within said enclosure.

Claim 80 (previously added) A device as recited in claim 79 wherein said coating is located on the interior of said enclosure.

Claim 81 (previously added) A device as recited in claim 79 further comprising a power module for powering the light source, said power module including a fitting for installation in a traditional light bulb socket and an AC/DC converter for converting AC power from traditional building wiring to DC power usable by a semiconductor devices.

Claim 82 (previously amended) A semiconductor light source for emitting light to illuminate a space used by humans, the semiconductor light source comprising:
an enclosure, said enclosure being fabricated from a material substantially transparent to white light,
a base to which said enclosure is mounted,
an interior volume within said enclosure,

a secondary heat sink located in said interior volume,
said secondary heat sink being capable of drawing heat from one or more semiconductors devices,
said secondary heat sink having a plurality of panels on it suitable for mounting primary heat sinks thereon,
said panels on said secondary heat sink being oriented to facilitate emission of light from the semiconductor light source in desired directions around the semiconductor light source,
a plurality of primary heat sinks mounted on said secondary heat sink, each of said primary heat sinks being smaller than said secondary heat sink,
a semiconductor chip capable of emitting light mounted on one of said primary heat sinks, said semiconductor chip being capable of emitting monochromatic light, said semiconductor chip being selected from the group consisting of light emitting diodes, light emitting diode arrays, laser chips, and VCSEL chips,
a coating for converting monochromatic light emitted by said chip to white light,
an air entrance, an air exit, and an interior airflow path through said heat sink,
said air entrance and air exit being proximate a fitting for electrical connection to a light bulb socket,
said airflow path proceeding from said air entrance toward the top of the bulb, turning 90 degrees to move laterally a predetermined distance, then turning to move down toward the bottom of the bulb, and out said air exit,
said airflow path permitting air to enter said heat sink through said air entrance, absorb heat from said heat sink, and exit said heat sink through said air exit, and
air located within said enclosure.

Claim 83 (previously amended) A semiconductor light bulb comprising:
an enclosure, said enclosure being fabricated from a transparent material through which visible light may pass, said enclosure being generally impermeable to gas,

a base to which said enclosure is mounted, said base including a fitting of appropriate shape for insertion into a light bulb socket,

an interior volume within said enclosure,

a heat sink located in said interior volume, said heat sink being capable of drawing heat from a vertical cavity surface emitting laser mounted on said heat sink,

a plurality of vertical cavity surface emitting lasers, at least some of said vertical cavity surface emitting lasers being capable of emitting light having a wavelength in the range of about 200 nanometers to about 700 nanometers, at least two of said vertical cavity surface emitting lasers being mounted on said heat sink without any module physically isolating them from each other,

an air entrance, an air exit, and an interior airflow path through said heat sink,

said air entrance and air exit being proximate a fitting for electrical connection to a light bulb socket,

said airflow path proceeding from said air entrance toward the top of the bulb, turning 90 degrees to move laterally a predetermined distance, then turning to move down toward the bottom of the bulb, and out said air exit,

said airflow path permitting air to enter said heat sink through said air entrance, absorb heat from said heat sink, and exit said heat sink through said air exit,

air located within said enclosure,

a fan within said enclosure for bringing air into said air entrance and forcing air through said airflow path and through said air exit,

an electrical connection between at least two of said vertical cavity surface emitting lasers,

an AC/DC converter,

a fitting for electrical connection to a light bulb socket,

electrical connection between said AC/DC converter and said vertical cavity surface emitting lasers,

electrical connection between said fitting and said AC/DC converter,

an air entrance, an air exit, and an interior airflow path through said heat sink,
said air entrance and air exit being proximate a fitting for electrical connection to a light bulb socket,
said airflow path proceeding from said air entrance toward the top of the bulb, turning 90 degrees to move laterally a predetermined distance, then turning to move down toward the bottom of the bulb, and out said air exit,
said airflow path permitting air to enter said heat sink through said air entrance, absorb heat from said heat sink, and exit said heat sink through said air exit, and
air located within said enclosure.